

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

SKYLINE SOFTWARE SYSTEMS, INC.,

Plaintiff,

v.

KEYHOLE, INC., and
GOOGLE INC.

Defendants.

CIVIL ACTION NO. 04-11129 DPW

[PROPOSED]

DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

Nelson G. Apjohn (BBO No. 020373)
NUTTER McCLENNEN & FISH LLP
World Trade Center West
155 Seaport Boulevard
Boston, MA 02210
(617) 439-2000
Fax: (617) 310-9000

Attorneys for Defendants and
Counterclaimants
KEYHOLE, INC. and GOOGLE INC.

Of Counsel
Darryl M. Woo, admitted *pro hac vice*
Maclain Wells, admitted *pro hac vice*
Kent E. Kemeny, admitted *pro hac vice*
FENWICK & WEST LLP
Embarcadero Center West
275 Battery Street
San Francisco, CA 94111
Tel. (415) 875-2300
Fax (415) 281-1350

INTRODUCTION

U.S. Patent No. 6,496,189, entitled “Remote Landscape Display and Pilot Training,” relates to methods and apparatus for displaying three-dimensional terrain images on a computer over a network, such as the Internet, touted for use as a pilot training aid. (A copy of the ‘189 patent has been attached as Exhibit 1 to the Declaration of Darryl M. Woo In Support of Defendants’ Claim Construction (“Woo Decl.”)). The proper construction of the limitations of this patent is attached as Exhibits 2 and 3 to the accompanying Woo Declaration. As discussed below, Defendants’ constructions adhere to well-established principles of claim construction as set forth by the Federal Circuit and this District’s precedent. Defendants accord the terms of the asserted patent their proper meaning as understood by a person of ordinary skill in the relevant art.

In contrast, Skyline’s constructions are inconsistent with how terms are used in the claims themselves, how the invention is described in the patent’s specification and prosecution history, and are at odds with how the terms would be understood by one of ordinary skill in the art. Indeed, Skyline has proffered no evidence whatsoever on how the terms would be understood by a person of ordinary skill in the art, merely noting that if the Court is interested in how such a person would understand the terms, Skyline is willing to provide it. Skyline Brief at 9 n.4. Skyline’s failure to provide constructions from this perspective renders its claim constructions essentially meaningless. The claims are interpreted, after all, not as they would be understood by Skyline’s counsel, or a layperson, or even a judge, but by a person of ordinary skill in the art. *See, e.g., Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1360 (Fed. Cir. 2004) (“The touchstone for discerning the usage of claim language is the understanding of those terms among artisans of ordinary skill in the relevant art at the time of invention... Thus, this court sets the meaning of claim terms by ascertaining their technological and temporal context”); *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1367 (Fed. Cir. 2003).

By taking the person of ordinary skill in the art out the equation, Skyline offers

constructions without context and departs from well-established law. Indeed, some of Skyline's proposed out-of-context constructions are absurdly broad, and fail to provide any assistance to the trier of fact in ascertaining the true meaning and scope of the claims.

Additionally, Skyline has stated its refusal to provide any constructions *at all* for 22 of the 24 asserted claims until it receives additional discovery that this Court has now twice ruled should be deferred until after claim construction.¹ Skyline's failure to address the understanding of someone of skill in the art, along with its refusal to provide constructions on 22 of its 24 asserted claims in its opening brief, is in all probability but an attempt to sandbag Defendants *yet again*² by waiting until their reply brief so they can get the last written word. Skyline should not be allowed this stratagem. In the event that Skyline so attempts to misuse the briefing process set down by this Court, Defendants should be granted leave to file a surreply.

THE CLAIMED INVENTION

The '189 patent relates to a method and apparatus for providing three-dimensional terrain images to a computer over a network, such as the Internet, for use in pilot training. The patent is not nearly as broad as Skyline would have it be by its reading of the claim terms out-of-context and contrary to its own specification. The Skyline inventors acknowledge in the specification itself that flight simulators, video streams of images over the Internet, and computer rendering of three-dimensional terrain images were all known in the prior art. '189 patent, col. 1:27-44. One piece of prior art cited in the specification is U.S. Patent No. 5,566,703, which describes a

¹ Skyline devotes a substantial portion of its claims construction brief to rehashing its arguments in opposition to this Court's phasing of the case, which the Court has already rejected. Because Skyline's present argument is nothing but an improper motion for reconsideration, Defendants will not waste the Court's time responding to them in this brief. In the event the Court decides to reconsider, however, Defendants concurrently submit a separate brief addressing this issue.

² Skyline has already employed this precise strategy. Skyline's proposed claim constructions, along with their responses to other written discovery, were due on January 24, 2005, the same day as Defendants' proposed constructions. Defendants served their responses in a timely fashion, but Skyline waited until it received Defendants' responses before belatedly serving their own on January 28, 2005, four days late under the Federal Rules of Civil Procedure. Woo Decl. Exh. 10. The Court should not permit Skyline to once again help itself to such unfair advantage by deferring the bulk of its claim construction to its "reply" brief.

method for allowing a pilot to preview a route either in flight or on the ground and suggests allowing the pilot to take over and try out different flight strategies. ‘189 patent, col. 1: 45-49. However, to effectively render 3D terrain, for example over the course of a flight route, a large amount of data is required. ‘189 patent, col. 1:49-51. One solution in the prior art was to provide data in advance on CD-ROM, but because of time needed to effect delivery of a CD-ROM to users, users could not receive frequent or last minute updates. ‘189 patent, col.1:55-61. According to the patent, streaming data over a communication link such as the Internet would avoid these problems.

The ‘189 patent thus describes and more narrowly claims only particular methods of providing three-dimensional terrain data to users, claimed to be more efficient over the prior art. ‘189 patent, col. 2:6-15. The method and apparatus claimed specifically relates to storing terrain data in a hierarchical structure by resolution wherein each successive level of the hierarchy contains blocks of terrain data at an increasingly greater amount of detail per unit area. ‘189 patent, col. 8:61-64 and Fig. 2. The blocks are referenced by their positional coordinates in the terrain and by their resolution level. ‘189 patent, col. 9:35-39.

An operational piece of software called a cache manager receives requests for data blocks needed to render a view of a portion of the terrain from another object called a renderer, which may be implemented in software or in “firmware” residing on a dedicated piece of computer hardware. The renderer (1) determines the coordinates of terrain data required to draw a view on a display and sends the needed coordinates along with a specified resolution level to another object; (2) receives the data blocks corresponding to the provided coordinates; and (3) uses the received data blocks to draw the view on the display.

Each request made by the renderer for data blocks includes the coordinates identifying the desired position in the terrain and an indication of the desired resolution level (the amount of detail per unit area). ‘189 patent, col. 16:32-35. If a data block corresponding to the requested coordinates and resolution level is present in local memory, the cache manager can provide the exact data block requested by the renderer. *Id.* If the requested data block is not in local

memory, the cache manager provides a lower resolution data block that is present in local memory, and downloads from a remote server higher resolution data blocks corresponding to the coordinates and resolution requested by the renderer. *Id.*

Certain claims of the ‘189 patent are directed to variations when more than one block is downloaded or two or more requests for data blocks are made. For example, some claims, such as claim 5, require downloading blocks according to the order that the requests are received from the renderer. ‘189 patent, col. 17:21-38. Certain other claims, such as claims 7-11, 18-22, are directed to methods of downloading blocks other than blocks required by the renderer to render the current view, in order to fill up the local memory with data blocks that might be needed. For example, some claims require downloading blocks within a predetermined range of the current viewpoint. ‘189 patent, col. 17:42-18:11; col. 20:4-38. Certain other claims, such as claims 23-24, are directed to a specific embodiment of the invention where the terrain images are provided as part of a flight simulator. ‘189 patent, col. 20:39-43.

LEGAL PRINCIPLES

Claim construction begins with the words of the claims. *Interactive Gift Express, Inc. v. CompuServe Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). The words used in the claims are examined from the perspective of a person skilled in the art at the time of invention. *Metabolite Labs.*, 370 F.3d at 1360 (“The touchstone for discerning the usage of claim language is the understanding of those terms among artisans of ordinary skill in the relevant art at the time of invention... Thus, this court sets the meaning of claim terms by ascertaining their technological and temporal context”); *Invitrogen, L.P.*, 327 F.3d at 1367. Testimony of one who is skilled in the art is thus always admissible to assist the court in understanding the relevant technology. *See Bayer AG v. Biovail Corp.*, 279 F.3d 1340, 1348 (Fed. Cir. 2002); *AFG Indus. v. Cardinal IG Co.*, 239 F.3d 1239, 1249 (Fed. Cir. 2001) (“[T]he testimony of scientific witnesses is indispensable to a correct understanding” of the meaning of disputed claims terms; “it would

undoubtedly be error in the court to reject the testimony.”); *see also* FED. R. EVID. 702. When a term has no accepted meaning to one of ordinary skill in the art, it is construed “only as broadly as is provided for by the patent itself.” *Goldenberg, v. Cytogen, Inc.*, 373 F.3d 1158, 1164 (Fed. Cir. 2004).

“Claims must be read in light of the specification, of which they are a part.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995)); *see also* *Schonbek Worldwide Lighting, Inc. v. Am. Lighting Fixture Corp.*, 63 U.S.P.Q.2D (BNA) 1180 (D. Mass. 2002) (Woodlock, J.) (“[W]hatever ordinary meaning is suggested for claim language by dictionary definitions must be put into the context of the specification, and even the prosecution history, of a given patent.”). The specification is the “single best guide to the meaning of a disputed term” and is therefore “always highly relevant to the claim construction analysis.” *Id.*

For example, in *Alloc, Inc. v. ITC*, the district court construed the claims of three related patents claiming self-locking floor panels to require “play” between the attached panels, even though the claims did not expressly recite that term. 342 F.3d 1361, 1368 (Fed. Cir. 2003), *cert. denied*, ___U.S.___, 158 L.Ed. 2d 963 (2004). The Federal Circuit affirmed, noting that the specification disclosed that “play” was an integral part of the disclosed invention. *Id.* at 1369-70. Because the specification made clear that the invention included “play,” it was proper to construe the claims to include that limitation. *Id.* at 1370 (citing *Sci-Med LifeSys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1345 (Fed. Civ. 2001)).

In addition, even if the specification does not set forth a unique meaning for a term in “explicit definitional format,” it may still assist in construction by providing the necessary context. *SciMed Life*, 242 F.3d at 1344 (“[T]he written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.”).

Although generally, there is a heavy presumption that claims have their ordinary meaning that would be attributed to them by persons skilled in the relevant art, *see Tex. Digital Sys. v.*

Telegenix, Inc., 308 F.3d 1193, 1202 (Fed. Cir. 2002), *cert. denied*, 538 U.S. 1058 (2003), this presumption may be overcome when the patentee acts as lexicographer, setting forth a term's definition in the specification that is different from its ordinary meaning. *See Axcelis Techs. v. Applied Materials*, 66 U.S.P.Q.2D (BNA) 1039, 1044 (D. Mass. 2002) (Woodlock, J.) (citing *Texas Digital*, 308 F.3d at 1204). The specification may reveal that a patentee "expressly defined terms used in the claims or ... *defined terms by implication.*" *Vanderlande Indus. Nederland BV v. ITC*, 366 F.3d 1311, 1318 (Fed. Cir. 2004) (emphasis added) (quoting *Dow Chem. Co. v. Sumitomo Chem. Co.*, 257 F.3d 1364, 1373 (Fed. Cir. 2001)); *see also Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1303 (Fed. Cir. 2004) (adopting narrow construction, in part, because specification "repeatedly, consistently and exclusively" used term in narrower sense and contained "no affirmative indication" that broader interpretation was intended).

Further, "[w]here a specification 'makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.'" *Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1346-47 (Fed. Cir. 2004), *cert. denied*, ___U.S.___, 160 L.Ed. 2d 31 (2004) (quoting *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001)).

On a related note, the Federal Circuit has held that when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment. *See, e.g., Wang Lab., Inc. v. America Online, Inc.*, 197 F.3d 1377, 1383 (Fed. Cir. 1999) ("The usage 'preferred' does not of itself broaden the claims beyond their support in the specification."); *see also Biogen, Inc. v. Berlex Labs.*, 318 F.3d 1132, 1139-40 (Fed. Cir. 2003).

In addition, the Court should consider the prosecution history, including any prior art cited in it. *Microsoft Corp.*, 357 F.3d at 1346-47; *Axcelis Techs.*, 66 U.S.P.Q.2D (BNA) at 1042.

The prosecution history is “of primary significance in understanding the claims.” *Markman*, 52 F.3d at 980; *see also Graham v. John Deere Co.*, 383 U.S. 1, 33 (1966) (“It is, of course, well settled that an invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office. Claims as allowed must be read and interpreted with reference to rejected ones and to the state of the prior art.”) (citation omitted); *Amhil Enters. v. Wawa, Inc.*, 81 F.3d 1554, 1559 (Fed. Cir. 1996). In particular, the prosecution history limits the meaning of claim terms to exclude any interpretation disclaimed by the patentee during prosecution. *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995). An amendment in response to a rejection by the examiner is one manner in which subject matter can be disclaimed during prosecution. *Id.* A position taken by the inventors before the patent office bars an inconsistent position on claim construction during litigation. *See CVI/Beta Ventures v. Tura LP*, 112 F.3d 1146, 1158 (Fed. Cir. 1997) (“[S]tatements made during prosecution or reexamination an applicant...may commit to a particular meaning for a patent term, which meaning is then binding in litigation.”); *Les Traitments Des Eaux Poseidon v. Kwi, Inc.*, 135 F. Supp. 2d 126, 138 (D. Mass. 2001) (holding that patentee unambiguously disclaimed plural interpretation of term “supply duct”)(quoting *CVI/Beta Ventures*).

“Proper claim construction...demands interpretation of the entire claim in context, not a single element in isolation.” *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374-75 (Fed. Cir. 1999). In other words, “the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.” *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1299 (Fed. Cir. 2003). “[T]he correct meaning of a word or phrase is informed only by considering the surrounding text ...[so] resort must always be made to the surrounding text of the claims in question, the other claims, the written description, and the prosecution history.” *Id.* at 1300. The Federal Circuit has held that “[a] claim construction is persuasive, not because it follows a certain rule, but because it defines terms *in the context of the whole patent*.” *Renishaw plc v. Marposs Società per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998) (emphasis added).

“Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.... The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw*, 158 F.3d at 1250 (citations omitted).

The relevant claim terms are properly construed below in accordance with these established principles.

PROPOSED CONSTRUCTIONS OF DISPUTED TERMS

Characteristic of a patentee that simply does not like the defendant’s claim construction, Skyline decries Defendants’ references to the ‘189 patent’s specification, generally arguing that such references amount to improperly “importing limitations from the specification into the claims.” Skyline Brief at 9. Ironically enough, however, with only minor exceptions,³ the only source to which Skyline cites in support of its own constructions is the specification and the preferred embodiments. Apparently, reference to the specification and disclosed embodiments is appropriate when it purportedly supports Skyline’s hoped-for broad constructions, but inappropriate when it supports Defendants’ constructions.

Of course, the law is not so one-sided, and all that Defendants have done is to read the claims in view of the specification to put them in the proper context, a necessary step in claim construction. *Vitronics*, 90 F.3d at 1582, (citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995); *see also Schonbek Worldwide*, 63 U.S.P.Q.2D (BNA) 1180 (“[W]hatever ordinary meaning is suggested for claim language by dictionary definitions must be put into the context of the specification, and even the prosecution history, of a given patent.”). Furthermore, many of the claim terms are defined in the specification. In such circumstances,

³ The only sources other than the specification used by Skyline to support its own constructions are dictionaries that provide proposed meanings of “coordinate,” “local memory,” and “communication link.” *See* discussion, *infra*. Other than these three terms, the only support on which Skyline draws comes from the specification.

the Federal Circuit requires adoption of the meaning set forth in the specification. *See, e.g., Vanderlande Indus.*, 366 F.3d at 1318 (holding that the specification may reveal that a patentee “expressly defined terms used in the claims or ... defined terms by implication.”).

Moreover, if the embodiments described in a patent specification actually constitute the invention itself, as is the case with the ‘189 patent, the claims are not necessarily entitled to a scope broader than that embodiment. *See, e.g., Wang Lab.*, 197 F.3d at 1383 (“The usage ‘preferred’ does not of itself broaden the claims beyond their support in the specification.”); *see also Biogen, Inc. v. Berlex Labs.*, 318 F.3d 1132, 1139-40 (Fed. Cir. 2003). The patentee’s gratuitous use of the word “preferably” and “preferred” (which appear approximately 202 times in the patent) cannot broaden the invention to include subject matter which it did not, in fact, invent. *See Renishaw*, 158 F.3d at 1250 (“Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim.... The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” (citations omitted)).

Additionally, Skyline revealed in its brief that it has *no* evidence as to how the claim terms would be understood by one of ordinary skill in the art. Skyline Brief at 9 & n.4. It merely provides attorney argument, coupled with the assertion that its constructions are “consistent” with the understanding of one with skill in the art, and that if the Court would find actual evidence “useful,” it will somehow procure it. *Id.* This failure to provide constructions from the proper perspective renders Skyline’s constructions essentially meaningless. The Federal Circuit has long held that claims are to be interpreted from the viewpoint of one of ordinary skill in the art, *see Metabolite Labs.*, 370 F.3d at 1360; *Invitrogen*, 327 F.3d at 1367, and that “the testimony of scientific witnesses is indispensable to a correct understanding” of the meaning of disputed claims terms, *see AFG Indus.*, 239 F.3d at 1249. At most, Skyline can argue that its constructions are consistent with the understanding of its counsel.

Defendants’ proposed constructions based on the claims, specification, file history and

opinion of Dr. Feiner as to how they would be understood from the standpoint of one of ordinary skill in the art, are attached as Exhibits 2 and 3 to the Woo Declaration, incorporated by reference, and explained below. Because the patent is about storing, requesting and retrieving “data blocks,” we start out with that claim term.

“data block”

Like several other terms, the term “data block”⁴ is used consistently throughout the claims and should therefore be given the same construction throughout. *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) (“a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent”).

Generally a “data block” is data that is processed as a single unit, but Skyline has chosen to be its own lexicographer with respect to this claim term. *See, e.g., Vanderlande Indus.*, 366 F.3d at 1318. The specification indicates that a “data block” as used in the patent is not simply a data block according to the term’s plain and ordinary meaning, but that it specifically means “an image of a terrain area that is composed of pixels, where each data block optionally also contains data associated with the image of the terrain area, such as data describing other objects that overlay the terrain; each data block has one particular resolution.” Declaration of Professor Steven K. Feiner, Ph.D. in Support of Defendants’ Responsive Claim Construction Brief (“Feiner Decl.”) ¶ 13. *See, e.g.,* ‘189 patent, col. 8:15-9:39; Figs. 2 & 3. This is how this term would be understood by one of ordinary skill in the art in light of the patent specification. Feiner Decl. ¶ 13.

The specification, *e.g.,* ‘189 Patent col. 8:15-9:39; Figs. 2 & 3, gives a detailed description of the structure of the “data block” of the invention, specifically referring to the data blocks as “images of terrain” in which the image blocks are subdivided into sub-blocks. ‘189

⁴ Some of the dependent claims refer simply to “blocks” but they are clearly referring to data blocks and should therefore be given the identical construction. Feiner Decl. ¶ 15.

patent, col. 8:15-37. The specification also refers to Figures 2 and 3 showing that a terrain image is “cut” into sub-blocks, each sub-block covering a smaller segment of the overall image. *See also* ‘189 patent col. 9:40-10:14. Furthermore, the specification also indicates that the data blocks contain an attachment field in which “additional optional data objects associated with the area covered by the sub-block are described.” ‘189 patent col. 8:38-47. The optional data can include data describing objects, such as buildings or map symbols, which are overlaid on the terrain. Feiner Decl. ¶ 14; ‘189 patent col. 8:48-58.

Defendants’ construction is also supported by Skyline’s own description of a data block as “*images stored in the database,*” wherein the “image of the terrain is *divided into blocks*” as shown in Figure 2. Skyline Brief at 10 (emphasis added). Skyline also concedes that the data blocks contain data that describe other objects that can be placed on the terrain. *Id.*

Skyline initially purports to give “data block” its “plain and ordinary meaning,”⁵ but in truth proffers a definition of this term “[a]s used in the Patent.”⁶ Skyline Brief at 9. Moreover, Skyline’s cited references do not support its position. Skyline refers to numerous passages that describe the term “data block,” then promptly ignores their content. For example, Skyline cites to Figure 2 in an attempt to show that the data blocks are composed of “images stored in the database” wherein “an image of the terrain is divided into blocks.” Skyline Brief at 10. Skyline then explains how the data blocks are processed to provide images of varying resolutions. *Id.* Yet, its proposed construction completely ignores all of these descriptions of a “data block,” and simply pulls language out of thin air. *See* Skyline Brief at 10 (“a ‘data block’ is ‘a quantity, set or amount of information or data representing a portion of the terrain.’”). Skyline’s curiously

⁵ Skyline actually argues that *all* of its constructions are taken from the “plain and ordinary meaning of the terms.” Skyline Brief at 9. Despite this blanket statement, several of Skyline’s proposed constructions are based on the unique use of the terms in the patent. *See* Skyline Brief, *passim*.

⁶ Indeed, Skyline could hardly argue that one of ordinary skill in the art would only think of a “data block” solely in the context of 3D imaging of terrain. Skyline has defined a person of ordinary skill in the art as “[a] person with a Bachelor of Science in computer science or electrical engineering or with the equivalent experience, as well as with college courses or similar experience or educational training in 3D graphics and computer programming.” *See* Woo Decl. Exh. 10, Answer to Interrogatory No. 8. A person with this background would consider “data block” to have a meaning that extends to far more than just data representing terrain. Feiner Decl. ¶ 16.

broad definition of “data block” is thus neither supported by the evidence, nor the “plain and ordinary” definition Skyline claims it is.

Additionally, Skyline states that data blocks “may consist solely of elevation data. *Id.*, col. 5, lns. 37-38.” Skyline Brief at 10. However, the cited portion of the specification states “Preferably, transferring the data blocks includes transferring blocks which include altitude data of the terrain.” This does not mean that blocks could “consist solely of elevation data” but rather that some blocks may include elevation data. Feiner Decl. ¶ 17.

“terrain”

The term “terrain” is also used consistently throughout the claims and should therefore be given the same construction throughout. Unlike “data block,” there is no indication anywhere in the patent specification that the patentee intended to impart a special meaning to the term “terrain.” Feiner Decl. ¶ 18. Consequently, the term’s plain and ordinary meaning should control. *See Tex. Digital*, 308 F.3d 1193 at 12042.

The plain and ordinary meaning of “terrain” is “the surface features of an area of land; topography.” *See* THE AMERICAN HERITAGE COLLEGE DICTIONARY 1400 (3rd ed. 1997), attached as Exhibit B to the Feiner Declaration. The specification supports this understanding of the plain and ordinary meaning of “terrain.” The specification makes liberal use of the term in describing aspects of the prior art and in explaining the patented invention. *See, e.g.*, ‘189 patent col. 1:25, 41, 44, 52; col. 2:13, 27; col. 3:5, col. 4:15; col. 5:38, 41, 53, 59; col. 6:55; 8:20. Nowhere in the patent, however, does the patentee provide a specialized meaning for the term “terrain,” nor does the context of the specification in whole or in part supply any such meaning.

Notwithstanding the lack of any supporting evidence, Skyline now argues in its brief that the ‘189 patent *does* impart a specialized meaning for “terrain,” and that “terrain” should therefore be construed to include “other features, such as color attributes and objects.” Skyline Brief at 12. Skyline cites various portions of the specification that, again, simply do not support

its assertions. For example, Skyline refers to the '189 patent, col. 8:36-37, to support its argument that the terrain includes "objects."⁷ Skyline Brief at 11. This portion of the specification, however, reads, "Blocks 42 are preferably real-life images of terrain areas received from airborne or satellite cameras." This passage plainly does not support Skyline's assertion that the terrain itself includes "objects."⁸ *Feiner Decl.* ¶ 20.

Skyline also argues that "terrain" should be construed to include "elevation attributes" and "color attributes," citing col. 8:34-35. Skyline Brief at 11. This portion of the specification states, "Each pixel is preferably represented by a color and an elevation attribute, as is known in the art."⁹ In other words, *pixels* can have elevation and color attributes. Unless Skyline is also advocating somehow that "pixels" and "terrain" are one and the same (another unsupportable proposition), this passage does not support Skyline's construction. *See, e.g.,* *Feiner Decl.* ¶¶ 18-20.

Furthermore, the specification uses the term "terrain" not only to describe the patented invention, but also to describe the prior art. Skyline's definition cannot be correct, because it cannot be reconciled with the prior art, which includes numerous examples that do not use

⁷ The patent identifies "objects" as items such as "labels, annotations, lines, and 3D objects" that can be overlaid on the image of the terrain. *See* '189 patent, col. 8:38-47.

⁸ It is possible that Skyline meant to cite col. 8:48-58, which does discuss the presence of "objects." First, it is neither Defendants' nor the Court's duty to decode Skyline's inaccurate citations. *See Rivera-Gomez v. de Castro*, 843 F.2d 631, 635 (1st Cir. 1988) ("Judges are not expected to be mindreaders."). Moreover, even a cursory reading of this section reveals that Skyline would then be improperly conflating "terrain" with "objects" that may be overlaid on top of the terrain. *See* '189 patent, col. 8:50-58 ("Alternatively or additionally, the structures [represented by "objects"] may be used to overlay virtual structures on the terrain... Further alternatively or additionally, the objects may be used to overlay map symbols and other markings on the terrain."). The *terrain*, as this passage and the rest of the specification makes clear, is the topography of the land, while *objects* are items that can be placed on top of the terrain for various purposes. Thus, the patent distinguishes between the terrain itself, and objects that may overlay the terrain. Objects, such as map symbols and buildings, are not subsumed into the terrain itself. Thus, while other portions of the specification do refer to "objects," they still do not support Skyline's construction.

⁹ Defendants note that earlier in its brief, Skyline strenuously argued that this *identical* passage in col. 8:34-35, specifically referring to "pixels," and "a color and an elevation attribute," was *not* relevant to claim construction because it was merely a "preferred embodiment." Skyline Brief at 10. Yet just one page later, it uses these same phrases from the specification as evidence that a proper construction *must* include them. Apparently, Skyline is perfectly willing to import elements of the specification into its constructions when it is convenient for its own arguments.

“terrain” in the specialized sense that Skyline advocates here. According to the ‘189 patent, for example, “[c]omputer rendering of three-dimensional *terrain* images is known in the art.” ‘189 patent, col. 1:41-42 (emphasis added). The specification also refers to U.S. Patent No. 4,940,972 as one prior art reference that displays an “image of the ground *terrain*.” See ‘189 patent, col. 1:42-45 (emphasis added). The specification also mentions U.S. Patent No. 5,566,073, which “suggests representing the *terrain* as polygons.” ‘189 patent, col. 1:45-52 (emphasis added). Because use of the term “terrain” must be consistent throughout the patent, Skyline cannot be using “terrain” to mean something different when speaking of the prior art and yet something else when speaking of the claimed invention, where there is no indication of any such distinction in the specification. See, e.g., *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1379-80 (Fed. Cir. 2001) (“In construing terms used in patent claims, it is necessary to consider the specification as a whole, and to read all portions of the written description, if possible, in a manner that renders the patent internally consistent.”); *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001) (“a claim term should be construed consistently with its appearance in other places in the same claim or in other claims of the same patent”). The specification’s descriptions of prior art are consistent with the plain and ordinary meaning of “terrain,” but not with Skyline’s manufactured definition. Skyline’s construction should be rejected.

“renderer”

In the specification and every single claim of the ‘189 patent, the “renderer,” which generates images, is clearly stated to have certain specific additional core properties: it must provide to another object coordinates in the terrain along with an indication of a respective resolution level and it must receive data blocks from another object. Feiner Decl. ¶ 21. Accordingly, the Court must look to the specification to identify the meaning of this claim term. See *Vanderlande*, 366 F.3d at 1318; see also *Irdeto Access*, 383 F.3d at 1303. When referring to the written description to identify a term’s special meaning, the term may be construed “only as

broadly as is provided for by the patent itself.” *Goldenberg, v. Cytogen, Inc.*, 373 F.3d 1158, 1164 (Fed. Cir. 2004). Further, the specification may identify a unique definition for a term, even if that definition is not in “explicit definitional format.” *SciMed Life*, 242 F.3d at 1344 (“[T]he written description can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format.”); *see also Vanderlande*, 366 F.3d at 1318 (holding that the specification may reveal that a patentee “expressly defined terms used in the claims or ... *defined terms by implication*”) (emphasis added); *Cognex Corp. v. Electro Sci. Indus.*, 214 F. Supp. 2d 110, 113 (D. Mass. 2002) (“While the definition of a term in the specification must be expressed ‘clearly,’ it need not be done explicitly.”).

The claim language as well as the specification explicitly require that the “renderer” perform a number of tasks and have certain attributes. Claim 1, for example, recites:

receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level;
providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory;
downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level.

‘189 patent, col. 16:32-44.

The proper construction of “renderer” as defined by the patent and as it would be understood by one of ordinary skill in the art is thus “a software and/or hardware object that performs each of the following steps: (1) determines the coordinates of terrain data required to create an image and sends the needed coordinates along with a specified resolution level to another object; (2) receives the data blocks corresponding to the provided coordinates; and (3) uses the received data blocks to create an image.” *Feiner Decl.* ¶ 22. This construction is supported by the claims themselves, and by the specification. *See* ‘189 patent, col. 3:58-60; col. 11:19-30; col. 12:58-13:2; col. 13:10-17; col. 16:28-44.

This is the proper construction because the claims of the patent define “renderer” by the functions it performs. Such claim language provides the proper context for the construction and in this case, the construction itself. *See Brookhill-Wilk*, 334 F.3d at 1299; *Hockerson-Halberstadt*, 183 F.3d at 1374-75.

The patent describes the three functions of the renderer. Feiner Decl. ¶ 23. The first function, as set forth in claim 1, entails “receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level.” ‘189 patent, col. 16:32-34. Because of the grammatical use of the passive voice, some object other than the “renderer” *receives* one or more coordinates in the terrain and an indication of the resolution level from the renderer, *i.e.*, the renderer sends this information to the other object. As explained in the specification, the “Renderer 72 determines the coordinates of the pixels it needs in order to render the view and requests the description of these pixels from a cache manager.... Along with each required pixel, block 42, or sub-block 43, renderer 72 preferably states the resolution level 44 at which the block is required.” ‘189 patent, col. 11:21-30. Therefore, according to the patent, the renderer determines the coordinates in the terrain of the data it needs and the resolution level in order to display the image. Feiner Decl. ¶ 23. The renderer then sends the needed coordinates and resolution level to another object or process. Feiner Decl. ¶ 23.

The renderer’s second function, as set forth in claim 1, is to receive data blocks corresponding to the coordinates, insofar as claim 1 is “A method of providing data blocks describing three-dimensional terrain to a renderer,” whose steps include “providing the renderer with a first data block which includes data corresponding to the one or more coordinates.” ‘189 patent, col. 16:28-38. In this step, the other object (the one that had received the request from the renderer in the first step) provides a first data block to the renderer corresponding to the coordinates provided by the renderer in the previous step, *i.e.*, the renderer receives the first data block. ‘189 patent, col. 3:60-61; Feiner Decl. ¶¶ 22-24. The first data block includes information needed to display the image of the terrain at the proper location. ‘189 patent, col. 8:61-64.

The renderer's third function is using the received data blocks to create an image. '189 patent, col. 3:55-57; Feiner Decl. ¶ 25.

Skyline's circular construction of "renderer" is absurdly broad and far removed from how one of ordinary skill in the art would understand the term as used in the patent. *See* Feiner Decl. ¶¶ 26-29. Skyline begins its construction with its assertion that a renderer is merely "something." Skyline Brief at 14. Although true that a renderer is indeed *something*, this hardly aids the determination of the claim's meaning or scope. Nevertheless, according to Skyline this "something," whatever it might signify, "may [or may not, apparently] be implemented entirely in software or may [or may not, apparently] include a dedicated hardware processor along with a software package running on a general purpose processor, which performs one or more steps of the recited method and assists in the display of the terrain based on the data provided." Skyline Brief at 14. It is difficult to imagine a more vague, circular, and unhelpful construction of a key claim term. In fact, Skyline's nebulous construction appears more than anything else to be a strategy designed to keep the construction of this term a moving target so that it need not take any definitive claim construction position, keeping it an impermissible "nose of wax" so as to best map it to the accused product once it obtains detailed information on Skyline's products and Defendant's noninfringement contentions. *Southwall Techs.*, 54 F.3d at 1578 ("A patentee may not proffer an interpretation for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history, and treat the claims as a 'nose of wax.'"). Skyline's ploy should not be permitted.

As an initial matter, Skyline can find absolutely no evidence in the claim language, the specification, the prosecution history, or any other form of evidence to support its construction other than a few references in the specification explaining that a renderer may be implemented either as software or hardware. Skyline Brief at 13-14. Simply, there is absolutely no support for Skyline's excessively broad contention that a renderer is "something ... which performs one or more steps of the recited method and assists in the display of the terrain based on the data provided." *See* Feiner Decl. ¶¶ 26-29. Indeed, the language of the claims themselves precludes

Skyline's construction.

Claim 1, identifies three steps to the method, which may be summarized generally as follows: (1) "receiving from the renderer"; (2) "providing [to] the renderer"; and (3) "downloading from a remote server." According to Skyline, the renderer performs one or more of these steps. The renderer does not *perform* these steps, however; some other object or objects perform the first and second steps of the method, and the renderer merely *provides* data to or *receives* data from the other object or objects that perform these steps. Feiner Decl. ¶ 27. One of ordinary skill in the art would understand that this claim requires that one or more objects separate from the renderer that receive from the renderer terrain coordinates and resolution level, and provide data blocks to the renderer. Feiner Decl. ¶ 28. The specification explains that this other object is a "cache manager" that performs this role of a separate component that receives from and provides to the renderer. *See* '189 patent, col. 3:58-4:9; col. 11:21-30, 39-12:7; Fig. 5; Feiner Decl. ¶ 28.

Further, there is no support anywhere in the intrinsic evidence that the renderer performs the step of downloading from the remote server. Feiner Decl. ¶ 29. Again, the specification identifies a cache manager as a separate component that performs this role. '189 patent, col. 11:62-63 ("Cache manager 74 downloads from the server 26 the blocks 42 and/or sub-blocks 43 required by renderer 72."); Fig. 5; Feiner Decl. ¶ 29.

Finally, Skyline also suggests that the renderer in addition need only "*assist[]* in the display of the terrain based on the data provided." Skyline Brief at 14 (emphasis added). Again, this portion of Skyline's proposed construction is so broad as to be essentially meaningless. According to this phrase, almost any other object could be considered a "renderer" because in some form or another, it might assist in the display of a terrain image.

In sum, Skyline has proffered no evidence whatsoever, either in the claim language, the specification, or the prosecution history, to support its overly broad construction of a "renderer."

“data blocks belonging to a hierarchical structure”

This phrase, as used in the patent, would be understood by one of ordinary skill in the art to mean “data blocks that are organized into multiple levels of resolution, whereby each level contains data blocks at the same resolution, and each successive level contains data blocks of a higher resolution than those in the preceding level.” Feiner Decl. ¶ 30.

Defendants’ construction having each successive level at a higher resolution than the preceding level is consistent with the specification, and with how “hierarchies” are arranged generally. Feiner Decl. ¶ 31. The specification provides a thorough explanation of how the data blocks of the invention are to be arranged in a hierarchy. *See, e.g.*, ‘189 patent, col. 3:3-12; 8:61-9:21; col. 14:28-46; Figs. 2, 3, 9. “Blocks 42 are classified in *successive resolution levels* ... according to ... the level of detail which they include.” ‘189 patent, col. 8:61-64 (emphasis added). Figure 2 shows four successive levels of data blocks. Level 1, the lowest level, covers the largest area per block and has the least detail per area unit. ‘189 patent, col. 8:64-67; Feiner Decl. ¶ 31. Each block of the next level, level 2, is of higher resolution and cover only one fourth of the area of level 1 blocks. Feiner Decl. ¶ 31. In other words, for each block of level 1, there are four blocks in level 2 of higher resolution that together cover the same area. ‘189 patent, col. 9:7-13; Feiner Decl. ¶ 31. Thus, the blocks in level 4 are of a higher resolution than those in level 3, which in turn are higher than those in Level 2, *etc.* (Resolution level: Level 4 > Level 3 > Level 2 > Level 1). Feiner Decl. ¶ 31. The specification further clarifies:

In a similar manner, each successive level 44 comprises blocks 42 which cover a quarter of the area of the blocks 42 of the lower resolution level.

Four blocks 55 of a certain level 44C, which cover the same area as a block 57 of the preceding level 44B, are referred to as descendants of block 57. Conversely, block 57 is referred to herein as the parent of blocks 55. The parent block 59 of block 57 is referred to herein as an “ancestor” of blocks 55, and is said to be of a lower resolution level than its descendants.

‘189 patent, col. 9:10-21.

Skyline suggests that the parties “essentially agree on the definition of this claim phrase.” Skyline Brief at 12. This is untrue. Skyline proposes that the phrase means “data blocks arranged into multiple levels of resolution, wherein each level of the structure contains blocks of a *different* resolution.” Skyline Brief at 13 (emphasis added). First, Skyline’s construction is unclear, as it can be interpreted in two contradictory fashions. Feiner Decl. ¶¶ 32-34. One possible way to read this is that *blocks* in one particular level have different resolutions than other blocks in that same level. Skyline’s construction in that event is directly contradicted by the specification, *see* ‘189 patent, col. 8:61-64, and is at odds with the very concept of a hierarchy where blocks are classified into levels based on their resolution. Feiner Decl. ¶¶ 32-34.

Another way to read Skyline’s proposed construction is that each level contains blocks that are of the same resolution as the other blocks in that level, but each level contains data blocks that are simply of a different resolution than the blocks of other levels, rather than successively higher or lower resolution than the preceding level. Feiner Decl. ¶ 33. For example, in an organization consistent with this interpretation, one level may be followed by a level of lower resolution which is in turn followed by a level of higher resolution, with all three resolutions being different. Feiner Decl. ¶ 33. Even assuming that Skyline intended this second interpretation (which may be the case), it is far too broad, and is not supported by the specification or the general concept of a hierarchy. Feiner Decl. ¶¶ 32-34. The specification describes a database in which successive levels have successively higher resolution. “Blocks 42 are classified in *successive resolution levels* ... according to ... the level of detail which they include.” ‘189 patent, col. 8:61-64 (emphasis added); *see also* Figs. 2, 9; Feiner Decl. ¶ 33. To the contrary, under Skyline’s erroneous view of a “hierarchy,” Figure 2 of the patent could have level 3 at the highest resolution, level 2 the next highest, followed by level 4 and level 1 respectively, *i.e.*, level 3 > level 2 > level 4 > level 1. According to Skyline, such a structure would still be considered *hierarchical* because “the resolution from level to level must only be ‘different.’” Skyline Brief at 12. Skyline’s argument that resolution levels need only be

“different” is unsupportable and simply wrong. *See* Feiner Decl. ¶ 33. In fact, Skyline’s construction would effectively read out the term “hierarchy” from the language of the claim. Feiner Decl. ¶ 33.

By way of analogy, consider the hierarchy of military rank. Under Skyline’s construction, there need be no top level of command, with successively lower levels beneath. Instead, each level would only need to be “different,” such that generals could issue orders to privates, but would likewise be obligated to take orders from privates. In fact, generals would be required to take orders from *all* other levels in Skyline’s hierarchy of command except other generals (who would be at the same, rather than at a “different” level). Such a scheme does not describe a hierarchy, but anarchy.

Skyline then argues that Defendants’ proposal is incorrect because “the hierarchical structure could equally be described as containing data blocks of *lower* resolution than those in the preceding level.” Skyline Brief at 12. All that Skyline has pointed out, however, is that a hierarchy can be viewed from the top down or from the bottom up. Feiner Decl. ¶ 34. This does not make Defendants’ construction “wrong.” Feiner Decl. ¶ 34. Indeed, Defendants have chosen one viewpoint (successively higher) over the other (successively lower) simply because the claim language describes it that way. *See, e.g.*, ‘189 patent, claim 1 (“data blocks at a *resolution level higher* than the resolution level of the first block”) (emphasis added). Thus, the patent claims themselves make clear that the “successively higher” viewpoint is the one of the two possible viewpoints that is the contextually correct one.

“coordinates in the terrain”

This phrase, as used in the patent, would be understood by one of ordinary skill in the art to mean “a pair of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain.” Feiner Decl. ¶ 35; ‘189 patent col. 4:15-18. The plain language of the claim itself supports Defendants’ construction, as it states clearly that the

coordinates are “*in the terrain*,” not “of” the terrain as stated by Skyline. The specification also supports Defendants’ construction. Feiner Decl. ¶ 36. For example the images of terrain needed to display a particular viewpoint are requested “using their (x, y) coordinates” or the “coordinates of the boundaries of the necessary areas.” ‘189 patent, col. 14:10-15. Thus, the coordinates are references to geographical locations “in” the terrain that will be displayed and may be “longitudinal and latitudinal (x, y) coordinates.” ‘189 patent, col. 9:36-38; Feiner Decl. ¶ 36.

In its brief, Skyline contends that the argument as to this claim limitation is only about the number of coordinates, but Skyline tries to sneak into its construction the word “of” instead of “in.” *See, e.g.*, Skyline Brief at 15. The phrase “coordinates *of* the terrain” does not appear anywhere in the specification or the claims. To the extent Skyline is seeking to broaden this claim limitation because “of” the terrain is something related to it while something “in” the terrain is narrower, such is improper. Skyline cannot re-write the claims by exchanging the word “of” for the word “in.”¹⁰ *See Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004) (“This court, however, repeatedly and consistently has recognized that courts may not redraft claims.... We construe the claim as written, not as the patentees wish they had written it.”).

Skyline suggests that the parties’ constructions differ “only in the number of ‘coordinates’ that may make up a terrain.” Skyline Brief at 15 & n.6. A simple reading of the parties’ proposed constructions reveals that this is far from the truth. As an initial matter, coordinates do not “make up a terrain” as Skyline suggests. *See* Feiner Decl. ¶ 37. Indeed, such a characterization makes no sense. Feiner Decl. ¶ 37. Coordinates may *reference* or *index* a location in the terrain, but in no sense do they “make up a terrain.” Feiner Decl. ¶ 37. Even Skyline’s proposed construction for the term “terrain” does not include any hint that a terrain is

¹⁰ It is possible that Skyline’s interchangeable use of these phrases is an attempt to impermissibly broaden the scope of the patent. A coordinate “of” the terrain may simply mean a coordinate “relating to” the terrain, while a coordinate “in” the terrain is limited to a coordinate’s location, a location *in the terrain*. Skyline should not be permitted to broaden patent scope through the surreptitious use of prepositional phrases.

“made up” of coordinates. The coordinates simply reference a particular location in the terrain.

Skyline’s proposed construction is incorrect for several additional reasons. First, it misrepresents the phrase that Defendants identified as needing construction. The relevant portion of claim 1, in context, reads, “receiving from the renderer one or more ***coordinates in the terrain*** along with indication of a respective resolution level.” Defendants (and Skyline for that matter) have asked the Court to construe the phrase “coordinates in the terrain.” See Skyline Brief at 14-16. Despite acknowledging in its brief that it seeks construction of “coordinates in the terrain,” Skyline actually proposes a construction for the broader claim phrase “***one or more coordinates in the terrain along with indication of a respective resolution level,***”¹¹ and then makes much ado about how Defendants ignore the “one or more” aspect of the claim and “seek to limit the number of coordinates.” Skyline Brief at 14-15.

Skyline mischaracterizes Defendants’ position, arguing that Defendants place an “arbitrary limitation on the number of coordinates to two.” Skyline Brief at 15. The simple response is that the problem, if any, is in the inartful drafting of the claim language. Clearly, the retrieved blocks must be defined by at least a pair of coordinates (e.g., an “x, y” pair) since the terrain map of the claimed invention must have at least two dimensions (latitude and longitude). Thus, “one or more coordinates in the terrain” must be satisfied by one or more pairs of coordinates, not just one coordinate (e.g. an x coordinate). Adopting Skyline’s definition would result in the inability to retrieve a data block because there would be no second, or “y” dimension to specify any particular location in the terrain.

Further, Defendants readily agree that “one or more” means “one or more than one.” Defendants in another section of this brief propose a construction for “indication of a respective resolution level,” *see infra*, though Defendants believe it can and should be construed independently, and not simply be “read into” the phrase “coordinates in the terrain.” Therefore, Skyline’s criticism of Defendants’ construction ends up being much ado about nothing.

¹¹ Skyline, though purportedly seeking a construction of “coordinates in the terrain,” proposes “any of a group of one or more numbers used to determine a position in the terrain, such as x, y, longitude, latitude, height, and/or resolution level.” Skyline Brief at 16.

Second, Skyline attempts to support its construction by citing a portion of the specification that discusses an entirely unrelated aspect of the invention. Skyline states that “the specification provides that ‘three coordinates preferably represent longitudinal, latitudinal, and height coordinates of the points along the course, as are known in the art of terrain mapping.’” Skyline Brief at 15 (quoting ‘189 patent, col. 10:39-43). However, this portion of the specification is not discussing the “coordinates in the terrain” that are received from the renderer and correspond to the data blocks that are subsequently provided to the renderer, as the phrase is used in Claim 1. Instead, the portion cited by Skyline refers to 3-dimensional coordinates that describe a pre-recorded flight path stored in a flight course database on a pilot training server. *See, e.g.*, ‘189 patent, col. 2:16-22; 7:35-38; col. 10:39-43; Fig. 4. This system is apparently used to train pilots and familiarize them with airports or difficult access areas. ‘189 patent, col. 10:44-51. The coordinates in this section describe the location of an “airplane” as it takes off, flies along a pre-arranged route, and lands at various airports. ‘189 patent, col. 10:33-51. These coordinates identify the “longitudinal, latitudinal, and height coordinates” of the plane as it travels the path. ‘189 patent, col. 10:39-43. The “coordinates” cited by Skyline, then, do not refer to “coordinates in the terrain” that identify a particular location in the terrain, as in claim 1, but to coordinates of a plane in flight as it moves along a flight path.¹²

Finally, Skyline argues that the numbers that compose the coordinates are “used to determine a position in the terrain.” Skyline Brief at 14-15. This is unnecessary surplusage, lacks support in the specification, and is not consistent with how one of ordinary skill in the art would understand the claim phrase. *Feiner Decl.* ¶ 38. The coordinates *directly identify* the particular location in the terrain. ‘189 patent, col. 4:15-18; col. 9:36-38; col. 14:10-15; *Feiner Decl.* ¶ 38. They are not, as suggested by Skyline, “any of a group of one or more numbers used [in some vague, unspecified manner] to determine a position in the terrain.” *Feiner Decl.* ¶ 38.

¹² Indeed, the very language of the claim suggests that the “coordinates in the terrain” do not themselves contain an indicated resolution level, because the coordinates are received from the renderer “along with indication of a respective resolution level.” If the coordinates already included an indicated resolution level, the phrase “along with indication of a respective resolution level” would be redundant and unnecessary.

Skyline pulls this language out of thin air, and incorporates it into the construction, making the disputed phrase far less clear than the actual language of the claim.

Accordingly, the phrase should be construed to mean “a pair of coordinates, such as latitude and longitude or x and y coordinates, of a particular location *in the terrain*.”

“indication of a respective resolution level”

Skyline has not disputed Defendants’ construction of this phrase. Consequently, the Court should adopt Defendants’ construction. Defendants believe that the phrase should be construed, even though Skyline has not disputed the phrase or otherwise offered a different construction, because it will assist in giving context to the construction of the claim as a whole. *See Brookhill-Wilk*, 334 F.3d at 1299; *Hockerson-Halberstadt*, 183 F.3d at 1374-75; *see also* Feiner Decl. ¶ 39.

As used in the patent, one of ordinary skill in the art would understand this phrase to mean “data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks.” Feiner Decl. ¶ 39.

The specification supports this construction. *See, e.g.*, ‘189 patent, col. 3:6-9; col. 4:14-17; Feiner Decl. ¶ 40. For example, data blocks of lower resolutions have less detail per unit area, while data blocks of higher resolution have more detail per unit area. ‘189 patent, col. 3:6-9; *see also* ‘189 patent, col. 9:55-61. Additionally, “the renderer 72 preferably states the resolution level 44 at which the block is required.” ‘189 patent, col. 11:27-39.

“receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level”

Although Defendants have already proposed constructions for some of the constituent phrases in this portion of the claims, Defendants believe that the phrase as a whole should also be construed to provide the proper context, and a coherent overall meaning. *See Brookhill-Wilk*, 334 F.3d at 1299; *Hockerson-Halberstadt*, 183 F.3d at 1374-75; *see also* Feiner Decl. ¶ 41.

Thus, this phrase as a whole would be understood by one of ordinary skill in the art to mean “an object other than the renderer receiving from the renderer one or more pairs of numerical coordinates, such as latitude and longitude or x and y coordinates, of a particular location in the terrain, and that object at the same time also receiving from the renderer data specifying the amount of detail per unit area corresponding to a level of resolution in the hierarchical structure of data blocks.” Feiner Decl. ¶ 42.

The support for this construction is found in Defendants’ proposed constructions for each of the constituent phrases. *See supra*. Additionally, one of ordinary skill in the art would understand that an object does not receive data from itself, thus requiring that the object receiving the coordinates and resolution level be an object other than the renderer. Feiner Decl. ¶ 43.

“data corresponding to the one or more coordinates”

Skyline has not disputed Defendants’ construction of this phrase. Consequently, the Court should adopt Defendants’ construction. Defendants believe that the phrase should be construed, even though Skyline has not disputed the phrase or otherwise offered a different construction, because it will assist in giving context to the construction of the claim as a whole. *See Brookhill-Wilk*, 334 F.3d at 1299; *Hockerson-Halberstadt*, 183 F.3d at 1374-75; *see also* Feiner Decl. ¶ 44.

This phrase, as used in the patent, would be understood by one of ordinary skill in the art to mean “data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer.” Feiner Decl. ¶ 45.

This construction is supported by the language in the claims. Feiner Decl. ¶ 46. For example, according to claim 1, the “data” is included in the “first data block.” As described earlier, the data in the data block is “an image of a terrain area that is composed of pixels” and optionally “data associated with the image of the terrain area, such as data_describing other

objects that overlay the terrain.” Feiner Decl. ¶ 46. Additionally, the phrase refers to “*the* one or more coordinates.” Feiner Decl. ¶ 46. The presence of “the” denotes a particular antecedent reference. “[T]he one or more coordinates” in this phrase from the claim is thus referring to the “one or more coordinates in the terrain” received from the renderer, as explained above. Feiner Decl. ¶ 46.

The construction also finds support in the specification. *See, e.g.*, ‘189 patent, col. 4:10-18; col. 6:1-5; col. 8:38-42; Feiner Decl. ¶ 47.

“local memory”

This term, as used in the patent, would be understood by one of ordinary skill in the art to mean “a memory that is part of the local computer that is performing the steps of the recited method.” Feiner Decl. ¶ 48.

The specification likewise makes clear that the local memory is part of the apparatus that is performing the method steps. Feiner Decl. ¶ 49; *see also* ‘189 patent, col. 3:25-27 (“the processor manages a local cache memory.... [T]he processor stores in the cache memory all blocks downloaded from the server.”). “[T]he apparatus include[es] a local memory.... [T]he memory receives the data blocks from a remote server.” ‘189 patent, col. 5:62-66; *see also* ‘189 patent, col. 15:50-51 (“all the received blocks are stored in cache memory 32 for later use”). The local memory that stores the data blocks once they have been downloaded is described as the “cache memory 32 of processor 20, for example in the main memory of processor.” ‘189 patent, col. 11:40-42, 58-61.

Skyline’s proposed construction (that local memory is “memory of a local computer”) is circular and offers no assistance to the trier of fact in determining the meaning or scope of the claim language. It is also contradicted by the plain and ordinary meaning as defined by Skyline, and the understanding of one of ordinary skill in the art. Feiner Decl. ¶ 50.

Skyline argues that its definition is drawn from the plain and ordinary meaning, and cites

the MICROSOFT COMPUTER DICTIONARY to support its argument. Skyline Brief at 17. However, the MICROSOFT COMPUTER DICTIONARY directly contradicts Skyline's proposed definition. The dictionary defines local memory as "[i]n microprocessor systems, *the memory on the same card or high speed bus as a particular processor*. Typically, memory that is local to one processor cannot be accessed by another without some form of permission." *Id.* (quoting MICROSOFT COMPUTER DICTIONARY 272 (4th ed. 1999) (emphasis added)). This definition plainly states that the memory is part of the same card or bus as the processor. This definition clearly suggests that the memory is part of the same unit as the processor. Skyline relegates this full definition to a footnote, presumably because it directly contradicts their proposed construction, and instead quotes a phrase from the declarative sentence that follows that does not actually provide a definition, but merely describes the typical access permissions to a processor's memory. Skyline Brief at 17 & n.8.

Additionally, "local memory" has a well-understood meaning to one of ordinary skill in the art: that the memory is part of the local computer. *Feiner Decl.* ¶ 50.

Finally, Skyline misrepresents Defendants' position in one of its arguments. In attempting to critique Defendants' arguments, it states that a local memory "need not physically form part of the processor." Skyline Brief at 18. Defendants, however, never suggested that the local memory must be physically part of the *processor*, only that it be physically part of the *computer*.

"first data block"

Defendants hereby incorporate their construction and arguments for the term "data block." *See supra*. Defendants vigorously disagree with Skyline's proposed construction, contrary to the assertion Skyline makes in its opening brief. Skyline's proposed construction is wholly unsupported in the specification, and reads out language from the claim, and should therefore be rejected.

Skyline proposes that the term be construed to mean “a designation of a data block that may be one of a plurality of data blocks.” Skyline Brief at 20. According to Skyline, “first” is mere patent-speak that carries no significance. Skyline Brief at 19 (“This claim phrase is a general reference, as typically employed in patent drafting, to a thing or step that may be one of a number of things or steps.”). While this may be true in some patent claims, the context provided by the surrounding text of the claims of the ‘189 patent demonstrates that in *this* patent, “first” does, in fact, carry its ordinary meaning, as an ordinal indication carrying the meaning of primacy. Feiner Decl. ¶¶ 51-53.

The claim language states that a *first* data block is provided to the renderer from a local memory. ‘189 patent, claim 1. According to the following steps of the claimed method, to require that “*additional* data blocks” may thereafter be downloaded from a remote server. Feiner Decl. ¶ 51. The term “additional” would be irrelevant and meaningless if there were no “first” data block that was already provided to the renderer. Feiner Decl. ¶ 51. Furthermore, downloading “*additional* data blocks” from a remote server, as explained in the third step of the method, only occurs “if the provided data block from the local memory [*i.e.* the *first data block* from the previous step] is not at the indicated resolution level.” Feiner Decl. ¶ 51. Thus, the downloading of additional data blocks depends on whether the data block first provided from the local memory is at the correct resolution level. Feiner Decl. ¶ 51. That the data block provided from the local memory be *first* is an ordinal requirement, and not a meaningless word in the claim that should be ignored. Feiner Decl. ¶ 51.

Even the passage cited by Skyline contradicts its assertion. The cited portion reads “the processor *first uses the data blocks stored in the cache memory* and concurrently sends download orders for higher resolution level blocks.... [I]f the block is not carried by the cache manager, it is ordered from the server.” Skyline Brief at 19 (quoting excerpts of ‘189 patent, col. 3:49-64) (emphasis added); *see also* Feiner Decl. ¶ 52. Thus, Skyline’s only “supporting” evidence actually states that the data blocks stored in cache memory are used first, in the ordinal sense (*i.e.*, exactly as Defendants propose), before additional data blocks are requested or downloaded.

In fact, this appears to be one of the key elements of the invention.

Other passages from the specification similarly explain that “first data block” does not simply mean one of many, but that the data block from the local memory is provided to the renderer *first*, before other data blocks are downloaded. *See, e.g.*, ‘189 patent, col. 3:60-64 (“If the cache manager has the ordered block, it provides it to the rendering program. However, if the block is not carried by the cache manager, it is ordered from the server, and a replacement block from a lower resolution level is passed to the rendering program.”); Feiner Decl. ¶ 52.

In light of the clear claim language, the specification, and the understanding of one of ordinary skill in the art, “the data block stored in local memory that is the first data block to be provided to the renderer in response to the coordinates in the terrain and the indication of a respective resolution level received from the renderer.” Feiner Decl. ¶ 53.

“providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory”

Although Defendants have already proposed constructions for some of the constituent phrases in this portion of the claims, Defendants believe that the phrase as a whole should also be construed to provide the proper context, and a coherent overall meaning. *See Brookhill-Wilk*, 334 F.3d at 1299; *Hockerson-Halberstadt*, 183 F.3d at 1374-75; Feiner Decl. ¶ 54.

Thus, this phrase as a whole would be understood by one of ordinary skill in the art to mean “an object other than the renderer provides to the renderer a first data block which includes data representing the terrain and any additional optional data objects to be overlaid on the terrain that is found at the coordinates received from the renderer, this first data block being provided from a memory that is part of the local computer that is performing the steps of the recited method.” Feiner Decl. ¶ 55.

The support for this construction is found in Defendants’ proposed constructions for each of the constituent phrases. *See supra*. Additionally, one of ordinary skill in the art would understand that an object does not provide data to itself, thus requiring that the object providing

the first data block to the renderer be an object other than the renderer. Feiner Decl. ¶ 56.

“downloading from a remote server one or more additional data blocks at a resolution level higher than the resolution level of the first block which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level”

Skyline has not proposed an alternative or contrary construction for this claim phrase. Consequently, the Court should adopt Defendants’ construction. Defendants believe that the phrase should be construed, even though Skyline has not disputed the phrase or otherwise offered a different construction, because it will assist in giving context to the construction of the claim as a whole.

Moreover, although Defendants have already proposed constructions for some of the constituent phrases in this portion of the claims, Defendants believe that the phrase as a whole should also be construed to provide the proper context, and a coherent overall meaning. *See Brookhill-Wilk*, 334 F.3d at 1299; *Hockerson-Halberstadt*, 183 F.3d at 1374-75; Feiner Decl. ¶ 57.

Thus, this phrase as a whole would be understood by one of ordinary skill in the art to mean “downloading to the local computer from a separate computer one or more additional data blocks each having an amount of detail per unit area greater than the amount of detail per unit area of the first data block already in the local memory, which additional data blocks include data corresponding to the one or more coordinates received from the ‘renderer,’ upon determination of the condition that the first data block already in the local memory is not at the indicated amount of detail per unit area received from the renderer.” Feiner Decl. ¶ 58.

The support for this construction is found in Defendants’ proposed constructions for each of the constituent phrases. *See supra*. Additionally, the claim language is clear that a determination is made as to whether the first data block from the local memory is at the correct resolution level before downloading additional data blocks. Feiner Decl. ¶¶ 59-61. The claim recites the downloading step as conditional, occurring only “if the provided block from the local

memory is not at the indicated resolution level.” *See, e.g.*, ‘189 patent, claim 1; Feiner Decl. ¶¶ 59-61.

Because the context of the invention is a computer, the computer must make some determination in order to ascertain whether the conditional element is true. A computer cannot simply “know” whether some factual condition exists; it must make a determination of that fact. A construction that eliminated this determination of the condition would effectively read out the entire phrase “if the provided block from the local memory is not at the indicated resolution level” and dramatically alter the meaning of the claim. Feiner Decl. ¶ 60.

Defendants’ construction is also supported by the specification. For example, “[i]f the cache manager has the ordered block, it provides it to the rendering program. However, *if the block is not carried by the cache manager, it is ordered from the server.*” ‘189 patent, col. 3:60-64) (emphasis added). Additionally, “[c]ache manager 74 downloads from server 26 the blocks 42 and/or sub-blocks 43 required by renderer 72, *if they are not already stored in cache memory.*” ‘189 patent col. 11:62-65 (emphasis added). In all of these examples, the computer program must make a determination of the condition in order to take appropriate action. Feiner Decl. 61.

The prosecution history of the ‘189 patent also sheds light on the scope of this claim, and should be considered in this construction. *See Microsoft Corp.*, 357 F.3d at 1346-47; *Axcelis Tech.*, 66 U.S.P.Q.2D (BNA) at 1042. The patentee originally claimed a method that placed no requirements on whether the resolution level of the one or more additional data blocks that were downloaded had to be of higher resolution. The patentee amended its claims after a rejection by the examiner based on the prior art. An amendment in response to a rejection by the examiner is one manner in which subject matter can be disclaimed during prosecution. *Southwall Tech.*, 54 F.3d at 1576. This is to ensure that “[c]laims may not be construed one way in order to obtain their allowance and in a different way against accused infringers.” *Id.*

The original first claim of the ‘189 patent recited:

A method of providing data blocks describing three-dimensional terrain to a renderer, the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels; the method comprising: receiving from the renderer one or more coordinates in the terrain along with indication of a respective level; providing the renderer with a first data block which includes data corresponding to the one or more coordinates, from a local memory; and downloading from a remote server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level.

The Examiner rejected this claim as anticipated by Migdal et al. (“Migdal”, U.S. Pat. No. 5,760,783, attached as Exhibit 8 to the Woo Declaration) in the Office Action dated July 5, 2001, and again in the Final Office Action dated November 27, 2001. *See* Woo Decl., Exh. 6 (GOOG 000102-115 and GOOG 000129-138). In response to the Final Office Action, patentee acknowledged that Migdal downloaded additional data blocks, but argued “Migdal always provides the highest resolution tile first, *e.g.*, “a new texel row 601 located forward of the eyepoint is loaded from mass storage device 208 into the highest resolution tile 410 into texture memory.” (col. 11, lines 14-16).” *See* Woo Decl., Exh. 7, Response to Final Office Action (GOOG 000152). The patentee distinguished the prior art, emphasizing as a basis for patentability the feature of always downloading blocks of a higher resolution level than the first block.

To overcome the repeated rejection by the Examiner, the patentee cancelled the original independent claim 1 and imported all of the limitations of that claim into original dependent claim 3. *See* Woo Decl., Exh. 7, Response to Final Office Action (GOOG 000143). This amended claim 3 issued as independent claim 1 of the ‘189 patent. *See* Woo Decl., Exh. 7, Response to Final Office Action (GOOG 000143-144). These actions had the effect of narrowing original claim 1 to include the limitations of dependent claim 3 to overcome the Examiner’s rejection. Original claim 1 was narrowed to require that if the provided block from the local memory is not at the indicated resolution level, the one or more additional blocks downloaded from a remote server are at a higher resolution level than the resolution level of the first block. The Examiner acknowledged that Migdal does not disclose downloading a block at a

resolution level higher than the resolution level of the first block. Woo Decl., Exh. 6, 7/5/01 Office Action (GOOG 000109).

The claims must be read within the context of their prosecution history. *Microsoft*, 357 F.3d at 1346-47; *Axcelis*, 66 U.S.P.Q.2D (BNA) at 1042 (Woodlock, J.). The patentee narrowed the claims to cover only the method where additional data blocks are always at a higher resolution level than the first block. Thus, issued claim 1 and all claims containing similar limitations must be construed with this limitation. A method that does not restrict the downloading of additional blocks to only those of a higher resolution than the provided block from local memory does not practice the patented method. To construe the claims otherwise would be to allow the patentee to unfairly recapture through claim interpretation specific meanings surrendered during prosecution. See *CVI/Beta Ventures v. Tura LP*, 112 F.3d 1146, 1158 (Fed. Cir. 1997) (“[S]tatements made during prosecution or reexamination an applicant...may commit to a particular meaning for a patent term, which meaning is then binding in litigation.”); *Les Traitments Des Eaux Poseidon v. Kwi, Inc.*, 135 F. Supp. 2d 126, 138 (D. Mass. 2001) (holding that patentee unambiguously disclaimed plural interpretation of term “supply duct”) (citing *CVI/Beta Ventures*, 112 F.3d at 1158).

CONSTRUCTIONS THAT SKYLINE HAS NOT DISPUTED

Defendants provided all of their constructions on all of the asserted claims to Skyline prior to Skyline’s briefing deadline in order to give it a meaningful opportunity to respond, and/or present its own constructions. Nevertheless, Skyline chose not to respond in any way to Defendants’ constructions for claims 2-11 or 13-24. Skyline apparently does not dispute Defendants’ constructions of these claims. Accordingly, the Court should adopt Defendants’ proposals for all claim terms for which Skyline has not offered a construction or response to Defendants’ constructions. Attached as Exhibit 3 to the Woo Declaration is a chart identifying the terms and phrases that Defendants believe require a construction, but Skyline chose not to

dispute. The Court should, therefore, adopt all of Defendants' constructions outlined in Exhibit 3.

If Skyline chooses to respond or propose its own constructions for the terms in Exhibit 3, Defendants request that they be permitted to submit a sur-reply brief that addresses Skyline's new, previously undisclosed constructions and/or arguments. As explained above, it would be unfair to permit Skyline to sandbag Defendants by refusing in its opening brief to provide constructions for disputed claim terms only to include them in its reply brief, after it has seen Defendants' entire claim construction position and when Defendants will no longer have an opportunity to respond.

Defendants also note that several of the remaining 22 claims contain apparent errors as shown in Exhibit 9 of the Woo Declaration. For example, claims 14, 15, and 18 include the phrase "data corresponding to the one or coordinates." *See, e.g.*, '189 patent col. 19:19-20. This phrase does not make sense. Either one or more words were mistakenly omitted or, or one or more words were mistakenly left in. The ambiguity renders the ultimate meaning of the phrase unclear, as it is susceptible to two entirely different interpretations. It could be modified by the insertion of the word "more" to read "data corresponding to the one or *more* coordinates." Alternatively, the words "one or" could be deleted to read "data corresponding to the coordinates." The Federal Circuit has held, however, that even obvious mistakes in claim language cannot be corrected by a court. *Allen Eng'g Corp. v. Bartell Indus.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002) ("[I]t is of no moment that the contradiction is obvious: semantic indefiniteness of claims is not rendered unobjectionable merely because it could have been corrected."); *see also Chef Am.*, 358 F.3d at 1374 ("This court, however, repeatedly and consistently has recognized that courts may not redraft claims."). Notwithstanding the errors in these claims, Defendants have made a good faith attempt to construe them.

CONCLUSION

For the foregoing reasons, the Court should adopt Defendants' proposed constructions as outlined in Exhibits 2 and 3 to the Woo Declaration.

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Respectfully submitted,

By: _____

Darryl M. Woo
FENWICK & WEST LLP
Embarcadero Center West
275 Battery Street
San Francisco, CA 94111
Tel. (415) 875-2300
Fax (415) 281-1350
email: dwoo@fenwick.com

Attorneys for Defendants and
Counterclaimants
KEYHOLE, INC. and GOOGLE INC.